

WHAT IS CLAIMED IS:

1. A vibration damping engine mount for an internal combustion engine, comprising:
  - 5 a vibration controllable support mechanism that supports the internal combustion engine thereon and develops a damping vibration in accordance with a variation in an air pressure supplied thereto against a vibration of the internal combustion engine
  - 10 thereon;  
a varying air pressure supply section that supplies a varying air pressure to the vibration controllable support mechanism; and  
an introduction section that introduces one of
  - 15 a negative pressure developed in a negative pressure pump and the atmospheric pressure into the vibration controllable support mechanism in accordance with the vibration of the internal combustion engine.
- 20 2. A vibration damping engine mount for an internal combustion engine, comprising:
  - a vibration controllable support mechanism that supports the internal combustion engine thereon and develops a damping vibration in accordance with a
  - 25 variation in an air pressure supplied thereto against a vibration of the internal combustion engine thereon; and  
a varying air pressure supplying section that supplies a varying air pressure to the vibration
  - 30 controllable support mechanism, the varying air pressure supplying section including a negative pressure pump to develop a negative pressure and an introduction section that introduces either one of

the negative pressure developed in the negative pressure pump and the atmospheric pressure into the vibration controllable support mechanism in accordance with the vibration of the internal combustion engine.

3. A vibration damping engine mount for an internal combustion engine as claimed in claim 2, wherein the introduction section comprises: an atmospheric pressure introduction passage into which the atmospheric pressure is introduced and which is communicable with the vibration controllable support mechanism; a negative pressure introduction passage into which the negative pressure developed in the negative pressure pump is introduced and which is communicable with the vibration controllable support mechanism; and a passage communication control section that controllably communicates either one of the atmospheric pressure introduction passage and the negative pressure introduction passage with the vibration controllable support mechanism in accordance with the vibration of the internal combustion engine.

4. A vibration damping engine mount for an internal combustion engine having an intake air passage, comprising:

a vibration controllable support mechanism that supports the internal combustion engine having the intake air passage thereon and develops a damping vibration in accordance with a variation in an air pressure supplied thereto against a vibration of the internal combustion engine thereon; and

an introduction section that introduces either one of the atmospheric pressure or a positive pressure developed within the intake air passage in accordance with a driving condition of the engine and  
5 the negative pressure developed in a negative pressure pump in accordance with the vibration of the internal combustion engine.

5. A vibration damping engine mount for an  
10 internal combustion engine having an intake air passage, comprising:

a vibration controllable support mechanism that supports the internal combustion engine having the intake air passage thereon and develops a damping  
15 vibration in accordance with a variation in an air pressure supplied thereto against a vibration of the internal combustion engine thereon;

a varying air pressure supplying section that supplies a varying air pressure to the vibration  
20 controllable support mechanism; and

a positive pressure developing section that develops a positive pressure within the intake air passage in accordance with the driving condition of the internal combustion engine, the varying air  
25 pressure supplying section comprising: a negative pressure pump that develops a negative pressure therein; and an introduction section that introduces either one of the atmospheric pressure or a positive pressure developed in the intake air passage by means  
30 of the positive pressure developing section and the negative pressure developed by means of the negative pressure pump into the vibration controllable support

mechanism in accordance with the vibration of the internal combustion engine.

6. A vibration damping engine mount for an  
5 internal combustion engine having an intake air  
passage as claimed in claim 5, wherein the positive  
pressure developing section comprises a turbo charger  
that is disposed in the intake air passage and  
increases an intake air quantity of the internal  
10 combustion engine and, when the turbo charger  
increases the intake air quantity of the internal  
combustion engine in accordance with the driving  
condition of the engine, the positive pressure is  
developed at a downstream side of the turbo charger  
15 in the intake air passage.

7. A vibration damping engine mount for an  
internal combustion engine having an intake air  
passage as claimed in claim 6, wherein the  
20 introduction section comprises: an atmospheric  
pressure introduction passage into which the  
atmospheric pressure is introduced and which is  
communicable with the vibration controllable support  
mechanism; a positive pressure introduction passage  
25 which is branched from a downstream side of the turbo  
charger in the intake air passage and is communicable  
with the vibration controllable support mechanism; a  
negative pressure introduction passage into which the  
negative pressure developed in the negative pressure  
30 pump is introduced and which is communicable with the  
vibration controllable support mechanism; a  
determining section that determines one of the  
atmospheric pressure introduction passage and the

positive pressure introduction passage whose internal pressure is higher than the other; and a passage communication control section that controllably communicates either one of the one of the  
5 introduction passages whose internal pressure is higher than the other determined by the determining section and the negative pressure introduction passage with the vibration controllable support mechanism in accordance with the vibration of the  
10 internal combustion engine.

8. A vibration damping engine mount for an internal combustion engine having an intake air passage as claimed in claim 7, wherein the internal  
15 combustion engine includes an intake air purifying section that is disposed at an upstream side of the turbo charger in the intake air passage and purifies the intake air and the atmospheric pressure introduction passage is branched from a downstream  
20 side of the intake air passage with respect to the intake air purifying section and a downstream side of the intake air passage with respect to the turbo charger to introduce the air thereinto.

25 9. A vibration damping engine mount for an internal combustion engine having an intake air passage, comprising:

a vibration controllable support mechanism that supports the internal combustion engine having the  
30 intake air passage thereon and develops a damping vibration in accordance with a variation in an air pressure supplied thereto against a vibration of the internal combustion engine thereon;

a varying air pressure supplying section that supplies the varying air pressure to the vibration controllable support mechanism; and

an introduction section that develops a  
5 positive or negative pressure in the intake air passage in accordance with a driving condition of the internal combustion engine and introduces either one of the air pressure developed in the intake air passage and the atmospheric pressure into the  
10 vibration controllable support mechanism in accordance with the vibration of the internal combustion engine.

10. A vibration damping engine mount for an  
15 internal combustion engine having an intake air passage, comprising:

a vibration controllable support mechanism that supports the internal combustion engine having the intake air passage thereon and develops a damping  
20 vibration in accordance with a variation in an air pressure supplied thereto against a vibration of the internal combustion engine thereon;

a varying air pressure supplying section that supplies a varying air pressure to the vibration  
25 controllable support mechanism; and

a positive and negative pressure developing section that develops a positive pressure or a negative pressure in the intake air passage in accordance with the driving condition of the internal  
30 combustion engine, the varying air pressure supplying section including an introduction section that introduces either one of the air pressure developed in the intake air passage by means of the positive

and negative pressure developing section and the atmospheric pressure into the vibration controllable support mechanism in accordance with the vibration of the internal combustion engine.

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11. A vibration damping engine mount for an internal combustion engine having an intake air passage as claimed in claim 10, wherein the positive and negative pressure developing section comprises a turbo charger that is disposed in the intake air passage and increases an intake air quantity of the internal combustion engine and a throttle valve that is disposed in the intake air passage and adjusts the intake air quantity of the internal combustion engine, when the turbo charger increases the intake air quantity of the internal combustion engine in accordance with the driving condition of the engine, the positive pressure is developed at a downstream side of the turbo charger and, when the throttle valve limits the intake air quantity of the internal combustion engine in accordance with the driving condition of the engine, the negative pressure is developed at the downstream side of the throttle valve.

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12. A vibration damping engine mount for an internal combustion engine having an intake air passage as claimed in claim 11, wherein the introduction section comprises: a positive pressure introduction passage that is branched from a downstream side of the turbo charger in the intake air passage and is communicable with the vibration controllable support mechanism; a negative pressure

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introduction passage that is branched from the downstream side of the throttle valve and is communicable with the vibration controllable support mechanism; an atmospheric pressure introduction  
5 passage into which the atmospheric pressure is introduced and is communicable with the vibration controllable support mechanism; and a passage communication control section that selects one of the positive pressure introduction passage and the  
10 negative pressure introduction passage in accordance with a driving state of the internal combustion engine and controllably communicates either one of the selected introduction passage and the atmospheric pressure introduction passage in accordance with the  
15 vibration of the internal combustion engine.

13. A vibration damping engine mount for an internal combustion engine having an intake air passage as claimed in claim 11, wherein the  
20 introduction section comprises: a positive-and-negative pressure introduction passage that is branched from a downstream side of the throttle valve in the intake air passage and is communicable with the vibration controllable support mechanism; an  
25 atmospheric pressure introduction passage into which the atmospheric pressure is introduced; and a passage communication control section that controllably communicates either one of the positive-and-negative pressure introduction passage and the atmospheric  
30 pressure introduction passage with the vibration controllable support mechanism in accordance with the driving condition and the vibration of the internal combustion engine.



14. A vibration damping engine mount for an internal combustion engine, comprising:

5 a vibration controllable support mechanism that supports the internal combustion engine thereon and develops a damping vibration in accordance with a variation in an air pressure supplied thereto against a vibration of the internal combustion engine thereon;

10 varying air pressure supply means for supplying a varying air pressure to the vibration controllable support mechanism; and

introduction means for introducing one of a negative pressure developed in a negative pressure  
15 pump and the atmospheric pressure into the vibration controllable support mechanism in accordance with the vibration of the internal combustion engine.

15. A method applicable to a vibration damping  
20 engine mount for an internal combustion engine, the vibration damping engine mount comprising a vibration controllable support mechanism that supports the internal combustion engine thereon and develops a damping vibration in accordance with a variation in  
25 an air pressure supplied thereto against a vibration of the internal combustion engine thereon and the method comprising:

supplying a varying air pressure to the vibration controllable support mechanism; and

30 introducing one of a negative pressure developed in a negative pressure pump and the atmospheric pressure into the vibration controllable

support mechanism in accordance with the vibration of the internal combustion engine.

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